

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figures 4 and 6. These sheets, which include Figs. 4 and 6, replace the original sheets including Figs. 4 and 6.

Attachment: Replacement Sheets

REMARKS

Claims 1-4, 6-18, 20-32, and 34-44 will be pending upon entry of the present amendment. Claims 1-2, 6-8, 11-16, 20-22, 29-30, 35-36, and 41 are being amended. Claims 5, 19, and 33 were previously canceled. Claims 43-44 are new. No new matter is being entered.

Figure 4 is being amended to indicate that the output of the filter 120 is provided to an input of the motocompensation module 122 as discussed in the specification at page 16, lines 10-13. Figure 6 is being amended to label the horizontal filters with reference number 1181 (consistent with specification at page 18, lines 9-14) and to label the vertical filter with reference number 1181 (consistent with specification at page 18, lines 15-19). Two sheets of drawings are presented herewith for approval.

Claims 1, 13, 14, and 29 were objected to for various informalities. The claims are being amended as suggested by the Examiner.

Claims 1-4, 6-7, 10, 14-18, 20-21, 24, 28-32, 34-35, 38, and 42 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,926,573 to Kim et al. ("Kim") in view of U.S. Patent No. 6,181,711 to Zhang et al. ("Zhang"), and further in view of "Adaptive Motion-Vector Resampling for Compressed Video Downscaling to Shen et al. ("Shen"). Claims 8-9, 22-23, and 36-37 were rejected under 35 U.S.C. § 103 as being unpatentable over Kim, Zhang, and Shen in view of U.S. Patent Application Publication No. 2002/0003838 to Takahashi et al. ("Takahashi").

The cited prior art does not teach or suggest the invention recited in claim 1, as amended. Amended claim 1 recites a process that generates, from an MPEG input bitstream having a first resolution, an MPEG output bitstream having a second resolution. The process modifies the resolution to the second resolution after performing motion compensation in the first resolution. In particular, the process includes:

subjecting said inverse-quantized second portions of the first resolution to motion compensation in a DCT domain to obtain motion-compensated second portions of the first resolution;

subjecting said motion-compensated second portions to a first operation of modification of the resolution by filtering said motion-compensated second portions in a discrete cosine transform domain to obtain resolution-modified second portions in the second resolution.

The cited prior art references do not teach or suggest applying such steps. As indicated by the Examiner, Kim does not teach motion compensation. Zhang, Shen, and Takahashi all require the motion compensation to be performed after a change in resolution, and thus do not suggest performing motion compensation on inverse-quantized second portions of a first resolution or subjecting the motion-compensated second portions to a modification of the resolution. In particular, Figure 2B of Zhang shows the motion compensation block 66 after the inverse transform block 64; Figure 4 of Shen shows the motion compensation block downstream of the downscale block; and Figure 2C of Takahashi shows the motion compensation block 27 downstream of the first resolution converter 28.

The applicants respectfully submit that the Examiner incorrectly indicated that Takahashi teaches performing motion compensation before changing resolution (page 7, lines 1-11 of office action). The Examiner pointed to paragraph 0133 of Takahashi, but that paragraph merely indicates that the quantization step is normally determined by counting the bits in the output of the variable length coder 150. The applicants fail to see how that paragraph is even related to motion compensation or a resolution change, let alone how that paragraph suggests performing motion compensation before changing resolution.

It may be that the Examiner intended to refer to paragraph 0013 of Takahashi, which also does not teach or suggest performing motion compensation before changing resolution. Paragraph 0013 refers to Figures 1A-1B which show an image coding apparatus in which an input signal at terminal 70 is sent to a first resolution converter 91 before subjecting the resolution-converted signal to motion compensation in the motion compensator 89. In addition, the input signal at terminal 70 is not an MPEG input bitstream, and thus, Takahashi does not suggest any of the steps of claim 1 which operate on an MPEG input bitstream. Instead, the input signal at terminal 70 is an uncompressed digital signal (paragraph 0006) that is converted to an MPEG output signal that is output by the MUX 93.

Accordingly, amended claim 1 is nonobvious in view of the cited prior art.

Claims 2-4, 6-10, and 14 depend on claim 1, and thus, are nonobvious for the reasons expressed above. In addition, at least claims 2-4 and 8-9 recite additional elements that are not taught or suggested by the cited prior art. In particular, amended claim 2 recites subjecting the resolution-modified second portions to an inverse discrete cosine transform function. First, given that the prior art does not suggest the subjecting steps of claim 1, the prior art does not produce the resolution-modified second portions that could be subjected to any function. Second, the Examiner relies on Zhang as teaching an IDCT function, but Zhang requires the IDCT to be performed before any filtering or motion compensation and thus, cannot operate on an resolution-modified portions.

The cited prior art does not teach or suggest the elements of claims 3-4 which recite that the filtering in the DCT domain is performed with selectively variable coefficients. The prior art does not mention filtering with selectively variable coefficients. The Examiner notes that Kim teaches selectively varying a quantization-scaling code, but such a teaching does not suggest the elements of claims 3-4. Kim states that a quantized scale factor is obtained in step 760 of Figure 2 and is applied by the quantizer 650 of Figure 1 to converted DCT coefficients to produce quantized DCT coefficients (col. 10, lines 58-65). As is known in the art, such quantization is not filtering and does not change the resolution of motion-compensated second portions. In addition, a single quantized scale factor cannot be plural selectively variable coefficients.

The cited prior art does not teach or suggest the elements of amended claim 8 which recites generating prediction data for said motion compensation starting from the resolution-modified second portions stored with said second resolution by subjecting the stored resolution-modified second portions to a second operation of modification of the resolution that brings back the resolution of the stored data from said second resolution to said first resolution. Kim, Zhang, and Shen do not suggest changing the resolution more than once. Takahashi shows first and second resolution converters 91, 92, but does not suggest the arrangement of process steps recited in claims 1 and 8. Claims 1 and 8 together recite that the motion compensation is performed on second portions having a first resolution, the motion-compensated portions are converted to a second resolution, stored at the second resolution, and then re-converted to the

first resolution. Takahashi never converts the output of the motion compensator 79 to a second resolution and then back to a first resolution. With respect to the motion compensator 89, its output is merely converted once by the second resolution converter 92. The first resolution converter 91 never converts any output of either motion compensator 79, 89.

For the foregoing reasons, claims 2-4, 6-10, and 14 are nonobvious in view of the cited prior art.

Although the language of claims 15-18, 20-24, 29-32, 34-38, and 42 is not identical to that of claim 1-4, 6-10, and 14, the allowability of those claims will be apparent in view of the above discussion.

Claims 11-13, 25-27, and 39-41 were rejected under 35 U.S.C. § 103 as being unpatentable over Kim, Zhang, and Shen in view of U.S. Patent No. 6,539,120 to Sita et al. ("Sita").

Kim, Zhang, Shen, and Sita do not teach or suggest the invention recited in claims 11-13 because Sita does not suggest the features of claim 1, from which claims 11-13 depend, that are missing from Kim. In particular, Sita does not suggest subjecting inverse-quantized second portions to motion compensation in a DCT domain or subjected motion-compensated second portions to a first resolution modification by filtering in the DCT domain. Accordingly, claims 11-13 are nonobvious in view of the cited prior art.

Although the language of claims 25-27 and 39-41 is not identical to that of claim 11, the allowability of those claims will be apparent in view of the above discussion of claims 1 and 11.

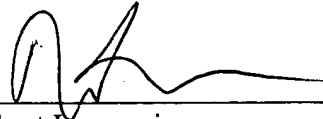
The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Application No. 10/075,087  
Reply to Office Action dated August 24, 2005

All of the claims remaining in the application are now clearly allowable.  
Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC



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RXI:lmr

Enclosure:

Postcard

2 Sheet(s) of Replacement Drawings - Figure 4 & 6

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